

Amendments to the Claims:

Claims 15-17, 20, 21, 23, 24 and 25-46 are pending in the case. Upon entry of this Amendment, the pending claims will be cancelled and will be replaced with Claims 47-56.

Listing of Claims:

Claims 1-46 (Cancelled).

Claim 47 (New). A method for identifying herbicides, comprising the steps of contacting a polypeptide having the sequence of SEQ ID NO: 2 with a chemical compound or a mixture of chemical compounds under conditions which permit the interaction of the chemical compound or the mixture of chemical compounds with the polypeptide, and determining the chemical compound which specifically inhibits the enzymatic activity of the polypeptide.

Claim 48 (New). A method for identifying herbicides, comprising the steps of contacting a polypeptide having the sequence of SEQ ID NO: 2 with a chemical compound or a mixture of chemical compounds under conditions which permit the interaction of the chemical compound or the mixture of chemical compounds with the polypeptide, and determining the chemical compound which specifically enhances the enzymatic activity of the polypeptide.

Claim 49 (New). A method for identifying herbicides, comprising the steps of contacting a polypeptide with the biological activity of a very long chain fatty acid elongase and having an identity of at least 90% to the sequence of SEQ ID NO: 2 with a chemical compound or a mixture of chemical compounds

mixture of chemical compounds with the polypeptide, and determining the chemical compound which specifically inhibits the enzymatic activity of the polypeptide.

Claim 50 (New). A method for identifying herbicides, comprising the steps of contacting a polypeptide with the biological activity of a very long chain fatty acid elongase and having an identity of at least 90% to the sequence of SEQ ID NO: 2 with a chemical compound or a mixture of chemical compounds under conditions which permit the interaction of the chemical compound or the mixture of chemical compounds with the polypeptide, and determining the chemical compound which specifically enhances the enzymatic activity of the polypeptide.

Claim 51 (New). A method for identifying herbicides, comprising the steps of contacting a host cell containing a polypeptide having the sequence of SEQ ID NO: 2 with a chemical compound or a mixture of chemical compounds under conditions which permit the interaction of the chemical compound or the mixture of chemical compounds with the polypeptide, and determining the chemical compound which specifically inhibits the enzymatic activity of the polypeptide.

Claim 52 (New). A method for identifying herbicides, comprising the steps of contacting a host cell containing a polypeptide having the sequence of SEQ ID NO: 2 with a chemical compound or a mixture of chemical compounds under conditions which permit the interaction of the chemical compound or the mixture of chemical compounds with the polypeptide, and determining the chemical compound which specifically enhances the enzymatic activity of the polypeptide.

Claim 53 (New). A method for identifying herbicides, comprising the steps of contacting a host cell containing a polypeptide with the biological activity of a very long chain fatty acid elongase and having an identity of at least 90% to

the sequence of SEQ ID NO: 2 with a chemical compound or a mixture of chemical compounds under conditions which permit the interaction of the chemical compound or the mixture of chemical compounds with the polypeptide, and determining the chemical compound which specifically inhibits the enzymatic activity of the polypeptide.

Claim 54 (New). A method for identifying herbicides, comprising the steps of contacting a host cell containing a polypeptide with the biological activity of a very long chain fatty acid elongase and having an identity of at least 90% to the sequence of SEQ ID NO: 2 with a chemical compound or a mixture of chemical compounds under conditions which permit the interaction of the chemical compound or the mixture of chemical compounds with the polypeptide, and determining the chemical compound which specifically enhances the enzymatic activity of the polypeptide.

Claim 55 (New). A method according to Claim 51, wherein the host cell is selected from the group consisting of *E. coli* cells, yeast cells, insect cells, mammalian cells and plant cells.

Claim 56 (New). A method according to Claim 53, wherein the host cell is selected from the group consisting of *E. coli* cells, yeast cells, insect cells, mammalian cells and plant cells.